STS CONSULTANTS

STS Consultants, Ltd.
750 Corporate Woods Parkway
Vernon Hills, Illinois 60061-3153

voice 847-279-2500
fax 847-279-2510
web www.stsconsultants.com

September 13, 2002

Mr. Fred Micke, On-Scene Coordinator
Ms. Verneta Simon, On-Scene Coordinator
U. S. Environmental Protection Agency
Region 5
77 W. Jackson Blvd., SE-5J
Chicago, Illinois 60604

Re: Response to Review Comments dated September 4, 2002, Regarding Work Plan for Investigation and Removal of Radiologically-Impacted Soil dated June 24, 2002, Lakeshore East LLC – STS Project No. 1-32193-XA

Dear Mr. Micke and Ms. Simon:

Thank you for your prompt scheduling of a meeting to discuss our response to your review comments on the above-referenced Work Plan. Attached please find an item-by-item response and a redline revision of the text of the Work Plan.

We are also providing a revision to SOP-210, regarding gamma survey documentation of the large scale grading. The surveying described in the revision will be done as part of large scale grading in areas of fill sufficiently thick so as to constrain detection of potentially buried impacted soil.

It is our intention to provide sufficient detail with the attached response such that USEPA can accept the proposed revisions and upon commitment to incorporate these revisions, authorize the mobilization to begin the work. The completion of the revisions would be made prior to actual commencement of removal work. However, mobilization work, anticipated to require a minimum of two weeks, would begin immediately upon receipt of USEPA's conditional approval.

We appreciate your consideration of the attached and your assistance with this project.

Regards,

STS CONSULTANTS, LTD.

Steven C. Kornder, Ph.D.
Senior Geochemist

Richard G. Berggreen, C.P.G.
Principal Geologist

cc: David Carlins

Response to USEPA Comments regarding the Work Plan for Lakeshore East

1) **Page 4, Section 2.1, para. 2: A statement should be added on the potential or actual consequences of leaving contaminated soil. It is possible a legal document may be required for future notification when radioactive materials remain.**

Response: A sentence has been added acknowledging the need to coordinate with USEPA regarding required documentation in the event impacted material is left in place. At present, in the absence of knowing whether impacted material will remain on-site, at what locations, whether on public or private property, and at what concentration, determination of the appropriate document is not possible.

2) **Page 4, Section 2.1, para. 3: It should be clear in this paragraph that final determinations of "clean" must be by soil concentration measurements (e.g., NUTRANL, gamma spectroscopy) not by gamma count rate measurements.**

Response: A sentence has been added indicating that the determination that an impacted area meets the clean-up criteria is based on a measurement of soil concentration of contaminant radionuclide.

3) **Page 8, Section 3.0, Methods: This section should include discussion of how offsite backfill will be screened to ensure it meets the criterion specified in Section 01020, "Construction Health and Safety," page 7 of 17, Section E(a)(1).**

Response: A paragraph has been added referring to testing to be performed on imported backfill in accordance with Specification 02200, Section 2.E.a.1.

4) **Page 8, Section 3.1, para. 2: The count rate to soil concentration calibration should be specified as using Kerr-McGee's thorium blocks at the West Chicago Rare Earths Facility.**

Response: A sentence has been added indicating equipment calibration will use the calibration blocks at the Kerr-McGee West Chicago Rare Earth Facility.

5) **Page 8, Section 3.2.1, para. 1: The identification of soil areas over 7.1 pCi/g was covered in two reports. This paragraph should distinguish which report is referred (or both, if that was the case).**

Response: Reference has been added to the three STS reports which provided radiological survey results, dated September 19, 2001; October 2, 2001; and February 8, 2002.

6) **Page 9, para. 1: The method by which the gamma count rate background will be determined should be discussed. This method will provide the number by which "twice background" is set.**

Response: Background values for Ludlum 2221 meter with 2 x 2 NaI and Ludlum Model 3 with 1 x 1 NaI probe will be established at six non-impacted locations on the site. A paragraph to this effect has been added in Section 3.2.1 and SOP 210.

7) **Page 9, para. 2: The method by which the five subsamples will be collected for compositing should be written down.**

Response: The sample collection method for collection and compositing of five subsamples has been added to Section 3.2.1. Additionally, reference to sampling procedure SOP 214 has been included.

8) **Page 10, para. 3: In addition to items a) and b) gamma spectroscopy samples may be used to document areas where removal is necessary and where removal has been successful.**

Response: This paragraph has been revised to incorporate this comment, referring to additional documentation which can be provided by gamma spec analysis.

9) **Page 10, Section 3.2.3, Verification Sampling: RSSI is referenced in the last paragraph of this page. However, Glen Huber is listed on Figure 3. Please clarify.**

Response: RSSI is referenced as an off-site laboratory. Mr. Glenn Huber is referred to on Figure 3 as the Health Physics Supervisor, and will also be responsible for the on-site laboratory.

10) **Page 12, bullet 3: Contaminated water cannot be used for dust control except on contaminated soils.**

Response: The reference to use of water for dust control has been revised to note use for dust control will be restricted to dust control of contaminated soil designated for disposal.

11) **Page 15, Section 4.0, Health and Safety Plan Summary: Dust Control Plan is in Appendix C not Appendix B.**

Response: This correction has been made.

12) **Page 18, Section 4.5, Air Monitoring: The elaborate dust control dust measures that could be needed should be listed in this section or directed to and stated in the Dust Control Plan.**

Response: Reference is added to the Dust Control Plan in Appendix C.

13) **Page 19, Section 4.5.2: 32 IAC are Illinois regulations that only apply when more stringent than Federal regulations. Material in this document, in some places, makes reference to Illinois regulations that are less stringent. *This paragraph should be written to make clear the priority of Federal regulations and reference the appropriate Federal regulations.***

Response: Reference to 32 IAC has been changed to 10 CFR Part 20. Note that a general statement has been added that states 10 CFR Part 20 will apply unless Illinois regulations are more stringent, in which case 32 IAC Section 340 will be utilized.

14) **Sheet #1: The source report for the elevated gamma radiation areas should be referenced.**

Response: Reference has been added to Sheet 1, identifying the STS reports dated September 19, 2001; October 2, 2001; and February 8, 2002.

15) **Sheet #2: The locations for the "Impacted Soil Boring" sites are difficult to find on this map.**

Response: The locations have been highlighted to better indicate the impacted boring locations.

16) **SOP-210: A criterion for gamma radiological surveys is twice background. This SOP, or another, must describe how backgrounds will be determined for gamma count rate and for gamma dose rate.**

Response: The procedure for establishing background for the survey instruments used has been added to this SOP, Section 5.1. Six non-impacted locations will be selected on-site and used to develop the background value.

17) **SOP-210, Section 5.0: The accuracy to which the GPS System will determine position should be included here. The data software to be used of processing the data should also be named.**

Response: The use of GPS has proved unreliable near the tall buildings adjacent to the site, and is not proposed for use. It was listed as an option and will not be part of the proposed work scope. Locations will be established by traditional land surveying using a licensed surveyor.

18) **SOP-212, Section 5.1: A ten hour collection for the air background is a very short time period. The accuracy of such a measurement may be limited since air levels change with time and these changes will be due to many factors (weather, sources, etc.).**

Response: The background air sampling is to be conducted over a five day period at 10 hours per day.

19) **SOP-212, Section 5.2.3: This section only commits to perimeter air monitoring. In Section 4.5, the last sentence commits to more extensive control measures if necessary. This SOP should make the same commitment.**

Response: Section 4.5 applies to dust control. Reference to more extensive dust control measures are included in the Dust Control Plan Appendix C. This SOP-212 refers to Air Monitoring.

20) **SOP-212, Section 5.3: This section should commit to proper siting of the air monitors, including an unobstructed path from the source to the samples.**

Response: Section 5.3.1 has been revised to specify air monitor locations will be established to provide unobstructed air flow to the monitors.

21) **SOP-212, Section 5.4.1: Gross alpha measurements for determining air concentrations should include an adjustment for the number of alpha particles (There are 6 in the equilibrium Thorium Decay Series) and the loss of radon-220 and its decay products between the source and the air filter.**

Response: An explanation of the gross alpha adjustment to account for alpha emitting progeny has been added at 5.4.1.2.

22) **SOP-212, Section 5.4.2.4: The proper citation should be 10 CFR 20.**

Response: The reference has been corrected.

23) **SOP-212, Section 10.1.5: Only objects that do not pass through a 1/4 inch grid screen should be retained.**

Response: With reference to SOP-214, Section 10.1.5, the specification has been changed to indicate that materials greater than 1/4 inch will be removed.

24) **SOP-345, Section 2.0: The dominant references are 10 CFR 20 and Regulatory Guide 1.86.**

Response: References have been changed to 10 CFR 20 and USNRC Regulatory Guide 1.86. Reference to IDNS License STA 583 has been deleted as not applicable.

25) **SOP-345, Attachment 2, item 9, bullet 1: Unless the PAC 4G will be used at this site, the actual instrument should be the one referenced.**

Response: Reference has been changed to reflect use of a Ludlum Model 3 with a G-M probe. This equipment is also referenced in Section 4.2 of this specification.

26) **SOP-345, Attachment 3, Table: The limits for this table are those of the Nuclear Regulatory Commission's Regulatory Guide 1.86 unless Illinois limits are more restrictive.**

Response: *We acknowledge this comment. Reference to these regulations has been changed in* Section 2.0 of this SOP.

27) **SOP-347, References and Section 3.2—2.0: The dominant references are 10 CFR 20 and Regulatory Guide 1.86.**

Response: References have been changed to 10 CFR Parts 19 and 20 and USNRC Regulatory Guide 1.86.

28) **SOP-347, Section 3.15: In addition to TLD's, optically stimulated luminescence dosimeters (OSL's) are now available. If OSL's will be used as the dosimeter, it should be the one referenced here.**

Response: *OSLs will be used on this project. Reference has been changed to specify OSLs.*

29) **SOP-364, Section 2.0: The dominant references are those of the Nuclear Regulatory Commission.**

Response: Reference has been changed to 10 CFR Part 20, Standards for Protection against Radiation.

30) **SOP-364, Section 4.2.1: There is specialized equipment listed here that may not be used by every contractor (e.g., Bico-Braum Pulverizer, Braum-Chipmunk Crusher). The sample preparation equipment and procedures should be those used by the contractor utilized for this project. Procedures and methods may be subject to audit.**

Response: The procedures and equipment listed are revised to reflect the procedures and equipment used by the contractor at the Lakeshore East project.

31) **SOP-366, Section 2.0: The dominant references must be those of the Nuclear Regulatory Commission and of the equipment actually to be used by the contractor.**

Any gamma spectroscopy analyses done <u>absolutely must</u> be done with:

- **A Gamma Fraction Limit of 71% and a Library Energy tolerance of 1.2 keV.**

Further;

- **The sample collection data and the sample analysis date must be provided for each sample.**
- **All analyses must come with full data printouts that, at the least, show all radionuclides detected and their concentrations, all gamma energies detected, and all gamma energies of unknown peaks, with their concentrations. Data limited to a few specific radionuclides at a few specific energies will not be acceptable.**
- **For radium-226 analyses, at the least, the concentrations found for radium-226 at 186 keV, lead -214 at 352 keV and bismuth-214 at 609 keV must be provided.**
- **The gamma energy library must be available upon request.**

- **A background spectrum report must be provided that, at the least, shows all radionuclides detected and their concentrations, all gamma energies detected, and all gamma energies of unknown peaks, with their concentrations.**

Response: All gamma spectroscopy analyses will be done using the requested Gamma Fraction Limit (71%) and Library Energy Tolerance (1.2 keV), and other gamma spec specifications as provided by the analyses. Please note that SOP-366 applies to NUTRANL analysis, not gamma spec, and as a result these specifications do not apply to this SOP.

32) **Emergency Contingency Plan, Secondary Emergency Numbers: The USEPA Region 5 emergency number should be listed as a primary number. The IDNS emergency number can be a secondary number.**

Response: This correction has been made in both the Emergency Contingency Plan and the Health and Safety Plan.

33) **Transportation and Logistics Plan, para. 5: The hours listed should be those actually set by the City of Chicago.**

Response: To Be Obtained.

34) **Verification Sampling Plan: This plan (or a similar plan) should contain the procedure to be used to verify incoming backfill meets radiological limits [see Section 01020, "Construction Health and Safety," on page 7 of 17, Section E(a)(1)].**

Response: See response to comment 3.

35) **Section 01010, Section 1.1, Item B(c): There should be a similar item discussing the method to be used to determine the gamma count rate and gamma exposure (or dose) rate.**

Response: See response to Comment 6.

36) **Section 02010, Demolition and Debris Removal, Page 7 of 8, paragraph c: Sheeting must not be used for overnight storage.**

Response: Procedure has been revised to avoid excavating material that cannot be placed in containers for overnight storage. No overnight storage on sheeting of radiologically-impacted soil is anticipated.

37) **Section 02200, Page 3 of 17, section 1.7(C): The radioactive concentration of the backfill must meet required limits of Part 2, Section 2.1(E).**

Response: Reference has been added relative to testing in accordance with Section 2.E of this specification.

38) **Section 02200, Table 02200-1: These guidelines from Regulatory Guide 1.86 are those that have been emphasized in comments above. These are the ones to be met, unless IDNS guidelines are more stringent (See discussion above).**

Response: We confirm these are the guidelines to be met. No revision beyond what has been made in response to previous comments above.

39) **Appendix E, Health and Safety Plan, page 10, Section 4.3.2: Allowable dosimetry may also include optically stimulated luminescence dosimeters (OSL's).**

Response: OSLs have been added to the list of acceptable dosimeters.

40) **Appendix E, Health and Safety Plan, page 31, Section 7.5: The instrument list must include the instruments that will actually be used on this project.**

Response: We confirm the instruments listed in Section 7.5 are correct and accurately represent the instruments that will be used on the project.

41) **Appendix E, Health and Safety Plan, page 333, Table 7-1: These guidelines are not the appropriate ones. Those from Nuclear Regulatory Commission Regulatory Guise 1.86 must be used unless Illinois guidelines are more stringent.**

Response: We feel the guidelines listed on the Table are appropriate. Regulatory Guide 1.86 addresses acceptable surface contamination levels. The action levels stated are at least as strict as 10 CFR 20, 32 IAC Section 340, and Regulatory Guide 1.86.

42) **Appendix E, Health and Safety Plan – Add hospital route map.**

Response: A hospital route map has been included in the Health and Safety Plan and the Emergency Contingency Plan.